COLLECTION AND NON-COLLECTION OF VISITOR INFORMATION: A STUDY OF OHIO INTERPRETIVE ORGANIZATIONS

A Senior Honors Research Project

by

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Thanks, Dr. Dowdy!

Mike Maynard

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The student is a major in Resource Development.

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ABSTRACT

COLLECTION AND NON-COLLECTION OF VISITOR INFORMATION:

A STUDY OF OHIO INTERPRETIVE ORGANIZATIONS.

(August 1979)

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Interpretation is a communication process which has educational, informational, and recreational aspects. As a communication process, it depends for its existence upon its lifeblood, an audience. For organizations providing on-site interpretation, the audience consists of the site visitor. While some research in the field of interpretation has focused on the visitor, much remains to be done, and the claim has been made that an information deficiency exists with respect to the visitor.

This research project documented the collection and application of visitor data/information by interpretive-related organizations in the state of Ohio, assessed their adequacy, and recommended alternative strategies.

Three groups of variables -- organization characteristics, organization attitudes, and organization collection efforts -- were examined for their utility in describing and explaining collection and non-collection of visitor information.

One data set was gathered within the state of Ohio. Randomly selected interpretive organizations were sampled to produce a usable data file of 72.

Description and analysis of the data file were conducted, and the results were as follow:

1. Certain organizational characteristics variables, organizational attitude variables, and organizational collection effort variables do

distinguish between collecting and non-collecting organizations.

2. Certain variables of all three types -- characteristics, attitudes, and collection efforts -- showed significant correlations.

3. Responses of interpretive organizations sampled indicate that present visitor data collection efforts are inadequate in several respects.

4. Collecting and non-collecting organizations can be differentiated in a fairly logical manner based upon 14 important variables.

These findings identified a set of empirical regularities concerning collection and non-collection of visitor data by interpretive organizations which can be useful in formulating future research and in planning and programming of interpretive activities sponsored by these organizations.

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CHAPTER I

INTRODUCTION

Environmental interpretation is "An educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information." (Tilden, 1957). This activity "...makes a particular subject matter 'come to life' by processing information to fit the relevancies of the human psyche." (Cherem, 1977a). "Put another way, interpretation is learning in a recreational setting." (Cherem, 1977b). "No matter how you define interpretation," though, "it must include the visitor." (Hanna and Silvy, 1978).

These statements reflect some of the current thinking regarding the subject of environmental interpretation. Through its use of original objects, firsthand experiences, and illustrative media, this educational/informational/recreational activity makes sites and subjects come to life for visitors to parks, environmental education facilities, nature centers, wildlife refuges, museums, zoos, historic sites, and numerous other non-work-oriented places. Ultimately a communication process, interpretation involves effective, well-planned, relevant transfer of information from the interpreter to the audience and reciprocal flow of important feedback from the audience to the interpreter. As the audience for interpretation, the visitor constitutes an all-important pivotal point in the interpretive process.

The citations on this and the following pages follow the style of the Journal Of Interpretation.

Because the visitor is so important in the interpretive process, information regarding visitor characteristics, visitor social groups, visitor psychology, and other measures of visitor makeup is essential for the effective, relevant planning and programming of interpretive facilities and services. In spite of this need, however, the literature of interpretation reveals a marked scarcity of published visitor studies. It would appear, then, that present visitor study efforts by interpreters may be inadequate.

The purpose of this research project is to document the collection and application of visitor data/information by interpretive-related organizations in the state of Ohio, to assess the adequacy of this collection and application, and to recommend alternative strategies where necessary.

Statement of the Problem

The field of environmental interpretation lacks a foundation of empirically-gathered descriptive data about its audience, the visitor (Mullins, 1979). Only a limited number of published studies exist which explain the interrelationships between various types of visitors and the types of interpretive facilities and services which will be most effective and relevant for them. Until such studies become a formalized part of the interpretive process, interpretive planning and programming cannot realize their full effectiveness or relevancy.

The specific question to which this research project is addressed is as follows: To what extent do Ohio organizations which provide interpretive facilities and services gather information about their

clientele in the planning, programming, and evaluation of those facilities and services? This study should have the following results:

1. Initially, a set of baseline data will be established regarding the state-of-the-art of visitor information gathering by interpretive organizations. Such data will provide the baseline for trend research in this area.
2. Next, information will be provided relating to the reported need for adequate visitor information for effective planning, programming, and evaluation of interpretive facilities and services.
3. Finally, a reference for other interpretive researchers will be provided, in that not only are findings reported and explanations offered, but a list of visitor-related variables and a set of suggested techniques for visitor data collection are provided as well.

Statement of Objectives

This study is designed to provide descriptive information about the characteristics of interpretive-related organizations in the state of Ohio and these organizations' perceptions of visitor information adequacy and factors limiting collection efforts. The following objectives guided this study:

1. To describe the collection and use of visitor data/information by interpretive-related organizations in the state of Ohio.
2. To determine whether any differences exist between organizations that do and do not collect visitor data/information.
3. To determine what correlations, if any, exist between and among organizational characteristics, attitudes, and visitor data/information collection efforts.

Statement of Research Hypotheses

The hypotheses tested in this research project relate directly to the study objectives. The following are the null hypotheses tested:

1. No difference exists between organizations that do and do not collect visitor related data when compared on the basis of type of organization, size, visitation and staff, and facilities/services offered.

2. No significant correlations exist between size, visitation, staff, number of seasonal interpretive activities offered, number of year round interpretive activities offered, total number of personal interpretive activities offered, total number of nonpersonal interpretive activities offered, the organization's perceptions of its data collection effort, the organization's perception of the adequacy of data available, the total number of approaches used to gather data, total number of social aggregate types of data collected/or desired, total number of social group types of data collected/or desired, total number of types of perception data collected/or desired, and the organization's report of the influence visitor data has in decision making.

CHAPTER II

REVIEW OF RELATED LITERATURE

For over two decades, literature regarding the field of environmental interpretation has recognized the importance of the visitor, the receiver of interpretive messages. As the beneficiary of interpretation, the visitor is both target and customer for interpretive services and facilities, and as such, merits intense study by interpreters. In spite of this, the literature reveals a paucity of studies dealing with visitors, and it appears that many interpreters and interpretive organizations fail to undertake systematic, thorough visitor studies.

The Importance of The Visitor in Interpretation

The importance of the visitor in the interpretive process has long been recognized. In his seminal work on interpretation, Tilden (1957) stated six principles of interpretation, the first being, "Any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile." (Tilden, 1957). He continued, "What we should determine, then, if we aim at establishing our first principle of Interpretation is: Now that the visitor is here, in what will be his chief interest, and inevitably his chief interest,while he is with us?"

More recently, interpretive researchers have reaffirmed the importance of the visitor. Field and Wagar stated that, "...people are the beneficiaries of interpretation; people are the object to which our efforts are directed." (Field and Wagar, 1976). Shortly after the publication of that statement, two Canadian Wildlife Service interpretive planners, Peart and Woods, formalized the role of the visitor in interpreta-

tion. The Peart-Woods communication model for interpretive planning (see Figure 1) has as one of its vital components the target group for interpretive messages, an audience (or the visitor) (Peart and Woods, 1977).

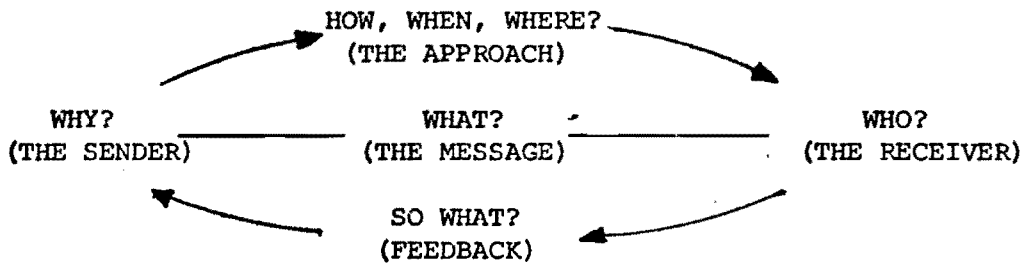

FIGURE 1.
THE PEART-WOODS COMMUNICATION MODEL
FOR INTERPRETIVE PLANNING

This model was modified slightly by Cherem, who reaffirmed the importance of the visitor as one vital component of interpretation (Cherem, 1977b). By this time, recognition of the crucial role of the visitor was growing. The importance of the visitor in interpretation was ultimately summed up by Hanna and Silvy: "No matter how you define interpretation, it must include the visitor." (Hanna and Silvy, 1978.

All of these sources spoke for the need to recognize the visitor as a key element in the interpretive process. Indeed, without the visitor as audience, the communication process of interpretation could not exist.

The Need for Understanding The Visitor

Tilden (1957) admonished interpreters, "You are to love people in the sense that you never cease trying to understand them." This statement essentially summarizes the philosophical basis upon which rests the literature regarding the need for understanding the visitor. Virtually all of the interpretive literature regarding the need for study of the visitor has emphasized the <u>understanding</u> of the many facets of the visitor

as a means for providing effective, well-planned, relevant interpretation (this provision being, in essence, Tilden's 'love'). Indeed, much of the literature which provides the philosophical rationale for visitor study can be divided into three distinct categories as follows:

1. the need to understand the visitor in order to insure EFFECTIVE interpretation;
2. the need to understand the visitor in order to insure WELL PLANNED interpretation;
3. the need to understand the visitor in order to ensure RELEVANT interpretation.

The interpretive literature rationale for visitor study to ensure effectiveness in interpretation actually involves two components, 1)visitor study to gain an understanding of the visitor that will allow for effective programming/presentation and 2)visitor study to assess the effectiveness of interpretive facilities/services, once provided. The first component, while known since Tilden's first printing of Interpreting Our Heritage (1957), has only recently found expression in interpretive literature. The second component, which calls for detailed visitor study for evaluative purposes, was not specifically addressed by Tilden, and it too has been relatively neglected in the literature until recently.

One of the earliest publications to express the need for visitor study as a means of ensuring interpretive effectiveness was a USDA Forest Service technical report entitled Educational Principles and Techniques For Interpreters (Boulanger and Smith, 1973). The authors' emphasis in this publication was upon the role of education in interpretation and the need to consider audience characteristics in order to achieve effective education. "What ages, educational backgrounds, occupations, and special interests are represented? Why are people in the audience attending your presentation?" (Boulanger and Smith, 1973).

Anderson and Low (1976), writing about historical site interpretation, pointed out the need to know who visitors are and why they come to the site in order to provide effective programming. At about the same time, Field and Wagar (1976) stated, "Effective interpretation requires a working knowledge of the clientele to whom the messages are directed so that appropriate means can be used to arouse the interest and transmit information." This view was affirmed by Grater (1976) who stated, "An interpreter must know his visitor or audience to be completely successful." Wagar (1976) added to these views the notion that visitor study for interpretive effectiveness should incorporate methods of formal research.

In his examination of the role of the environmental interpreter, Cherem (1977b) stressed that the interpreter must identify as closely as possible with the visitor, at all times being sensitive to the visitor's experience and sophistication. At the same time, Reyburn (1977) called for thorough and systematic understanding of the visitor as a means for advancing the profession of interpretation. In examining the function of interpretation as perceived by park visitors and interpreters in Texas, Silvy stated, "Central to all of these [interpretive] philosophies is the notion that the visitor is receiving a desired service. Therefore, there is a strong indication that for interpretation to be effective, the visitor must be well understood and acknowledged." (Silvy, 1977).

This notion that understanding the visitor is important, even crutial, to effective interpretation seems to have steadily gained support through the 1970's, with Hanna and Silvy stating in 1978 that, "The more you know about the visitor, the more effectively you can plan, evaluate, and conduct successful interpretive programming." Finally, Irwin (1978) simply stated what had by then become widely accepted, that "...effective

interpretation requires an understanding of the participant in that interpretation."

Closely related to the idea that visitor understanding is essential for effective interpretation is the belief that evaluation of interpretive services should rely on careful study of the visitor's reactions to them.The Peart-Woods communication model (Figure 1, page 6) and Cherem's modifications thereof (Cherem, 1977b) both emphasize the role of feedback from the visitor to the interpreter as a means for ensuring effective interpretation. This emphasis on the importance of feedback was well established prior to 1977, however; it had been recognized for some time as an important part of any communication process (Peart-Woods, 1977).

As early as 1970, this concept of feedback was applied to interpretation by Barkley, who stated that, "Interpretation, to do its job adequately, requires continuous feedback from its various types of communications." (Barkley, 1970). Wagar(1972b) stated this more explicitly, stating that, "...'feedback' from visitors is needed to help the interpreter know how well he is doing and what changes might be useful." Without feedback,it has been pointed out, interpreters have no way of knowing how well their interpretive services are performing the tasks for which they were intended (Washburn and Wagar, 1972).

The importance of visitor information in the evaluation process has been emphasized by a number of researchers (Barkley, 1970; Wagar, 1972a; Wagar, 1972b; Dick, Myklestad, and Wagar, 1975; Alderson and Low, 1976; Field and Wagar, 1976; Cherem, 1977b; Peart and Woods, 1977; Reyburn, 1977; Foley, 1978; Hana and Silvy, 1978; and Morfoot and Blake, 1978), and a number of possible techniques have been advanced for the collection of such information (Dick, Myklestad, and Wagar, 1975; Shiner

and Shafer, 1975; Alderson and Low, 1976; Field and Wagar, 1976; Cherem, 1977b; Cherem and Traweek, 1977; Hammitt, 1978; and Hanna and Silvy, 1978). As one pair of researchers stated, "It is essential, at some step of the interpretive process, to evaluate what visitors are getting from a visit to the site." (Alderson and Low, 1976). Another pair of researchers, in emphasizing the importance of feedback, said "In interpretation, feedback is the flow of information from visitors that lets interpreters know how well they are achieving both their objectives and those of the visitors." (Field and Wagar, 1976).

Since the Peart-Woods Communication model (Figure 1, page 6) formalized the role of the visitor in the interpretive process, the importance of feedback has also been formalized. In fact, some researchers have attached ultimate importance to this feedback from visitors. Cherem (1977b), for example, stated that the "...feedback process can best be termed 'interpretive evaluation'."

Another area where the importance of knowledge about visitors has been emphasized is that of interpretive planning. A number of interpretive planners writing on the subject have stated that information about the visitors who will be utilizing planned services is prerequisite to any planning venture. As Cherem and Traweek stated, "The interpretive planner needs to know what the visitor is perceiving in the resource before he can direct the visitor's attention toward or away from those aspects, sites, or themes." (Cherem and Traweek, 1977).

Although the Peart-Woods Communication Model for Interpretive Planning had stressed the importance of visitor information for interpretive planning, it was up to later researchers to develop the means for actually gathering the information. One method that was suggested by

Types of Visitor Data/Information

The literature on interpretation details a wide variety of visitor data/information types that should be collected by interpreters in order to assure effective, well-planned, and relevant programming. These individual types can be ordered into four broad categories of visitor data/information, as follow (Mullins, 1979; Cherem and Traweek, 1977):

1. Social Aggregate Data--data used to describe the visitor in terms of social aggregates such as age, sex, education, income, occupation, residence, race, marital status, household size, and number of children in household.
2. Visitor Social Group Data--data used to describe the visitor in terms of social group characteristics such as type of visitor group, number in visitor group, number of children in group, visiting children's age ranges, visitor group's social class, and relationships of persons within the visitor group.
3. Visitor Perception Data--data used to describe the visitor in terms of psycho-perceptual characteristics such as visitor program/visit expectations, attendance motives, attitudes toward the site, program evaluations, satisfaction with programs, and program/facility/service suggestions.
4. Visitor Behavior Data--data used to describe the visitor in terms of on-site behaviors such as numbers of different activities participated in, type of overnight accommodations used, visitor type participating in activity, type of visitor at site but not participating in activity, number of participants by activity, types of equipment brought to site by visitor, amount of time spent at site, whether first-time visit or repeat, and whether pets are brought to site.

The sources for each data category are numerous, and few researchers have stated the need to collect all of these data types at all times. These two facts would seem to indicate that different researchers--and by extension, different interpreters--view the needs for various types of data differently.

The Need for Systematic Visitor Study

A number of researchers have stated that the field of interpretation currently lacks systematic visitor study. These researchers have stated that, in spite of the importance of the visitor in the interpretive process and the corresponding need for understanding the visitor, little work has actually been done in the area of visitor analysis.

Alderson and Low (1976), writing about the interpretation of historic sites, stated "Very few sites have attempted audience surveys, and those that have done so have obtained results that are of only limited help to other sites.". Bultena, Field, and Renninger (1978), writing about the elderly as a visitor group stated "An...information deficiency exists in the fact that there is often little empirical data on the characteristics, activities, motivations, and interests of park visitors.". Other statements supporting the view that there currently exists a lack of visitor studies include the following:

> "...the literature on environmental interpretation yields very few articles dealing primarily with people." (Field and Wagar, 1976).
>
> "Interpretation lacks a clear understanding of which people are and are not served by the profession." (McDonough, Field, and Gramann, 1977).
>
> "Few studies have sought to identify certain empirical regularities involving people..." (Mullins, 1979).
>
> "All too often, state and federal agencies involved in interpretive functions have failed to allocate the time or resources necessary to gain insights about their customers...." (Wolf, Womble, and Field, 1977).

Summary of Literature Review

For the past two decades, the literature on environmental interpretation has reflected a growing knowledge of the importance of the visitor in the interpretive process. Along with this trend has come the realization that an understanding of the visitor is fundamental to the successful practice of the profession. However, few studies have been done on visitors to interpretive places. In spite of the availability of various visitor data collection techniques and known visitor data types, the profession appears to be experiencing an information deficiency regarding its clientele.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

This chapter details the research design utilized and the application of the scientific method in exploring the problem as it relates to interpretive effectiveness and evaluation, interpretive planning, and overall interpretive relevance. Implications from the statement of the research problem and from literature in the field of interpretation were brought to bear on this design. The chapter is ordered in four broad categories: design considerations, data collection, study variables, and data analysis.

Design Considerations

Interpretation is essentially a communication process, and as such, it relies both on effective analysis of feedback from its audience and on continual readjustment and replanning of approaches used. In spite of the importance of feedback analysis and approach modification, however, little has been done by practicing interpreters and researchers to formalize the roles of these techniques in the everyday practice of interpretation. Therefore, combining what is known about the importance of audience analysis with theoretical considerations of the need for systematic studies, a problem statement and design were generated to empirically examine the status of visitor study by one population of interpretive organizations.

The research design is quasi-experimental in its approach (Isaac and Michael, 1971), involving a one-time sampling of one heterogeneous

population. This study is both descriptive and correlational. The descriptive aspect involves comparisons of interpretive organizations which do collect visitor data/information and those which do not engage in such collection efforts. Various characteristics of the two types of organizations are compared. The correlational aspect of this study involves the use of correlational analysis to explain the interrelationships between variables. The demonstration of, at minimum, a weak causal relationship is considered sufficient for this correlational design.

The primary emphasis in this study is the examination of a sample of environmental interpretation organizations in the state of Ohio and their efforts in collecting information about their visitors. The study took place in 1979 and involved as its study population a randomly-selected sample of Ohio organizations providing interpretive facilities and services.

The data set was designed to yield information on organizational characteristics, attitudes, and collection efforts. These measures provided a vehicle for description and comparison of both the collecting organizations and the non-collecting organizations.

The data set was analyzed and reported in component parts, with the data from collecting and noncollecting organizations merged in the first descriptive analysis and separate in the second descriptive analysis, and with the data compared on a variable-by-variable basis in the correlational analysis.

The design sought to incorporate an optimum number of variables that appear to be related to interpretive organizations' collection of

visitor data/information. These variables are observed at various locations where interpretive facilities and services are provided. Multiple data subsets are employed at various stages of the hypothesis testing.

Data Collection

Data Set

One data set--relating to environmental interpretation organizations in the state of Ohio--was utilized in this study. This data set was gathered via self-administered mail-back questionnaires (see Appendix) and includes 72 cases. This data set was chosen to provide a wide cross-section of organization types, thus allowing variety in the comparisons. A descriptive presentation of the data set is offered in Chapter 4.

Questionnaire

Self-administered mail-back questionnaires were utilized in this study. A preliminary version of the questionnaire was drafted in June 1979. Following consultation with advisers, the questionnaire was revised and printed. Based upon recommendations from Potter (1972), the questionnaire was printed on blue paper, a clear introduction was used, and a statement of purpose and establishment of scientific legitimacy were included--all to enhance the return rate.

Questionnaire Distribution

A random selection procedure was used for choosing the questionnaire recipients. This procedure entailed the identification of all Ohio organizations providing one or more interpretive facilities and/

or services. The Ohio Academy of Sciences/Ohio Department of Natural Resources publication A Guide To Ohio Outdoor Education Areas (Melvin, 1975) was searched for all listed sites described as providing any interpretive facilities or services. Keywords used in the selection process included the following: conducted walks, environmental education, exhibits, guided tours, hayrides, interpretive, naturalist, nature center, nature hikes, nature trails, programs, self guiding trails, visitor center, and workshops. Randomness of sample was assured by picking from a hidden, shuffled pile 169 recipients' addresses.

The 169 questionnaire recipients so picked were each mailed one questionnaire, along with a cover letter and a pre-addressed, stamped envelope. Of these, 160 were mailed from the Ohio State University on July 12, 1979, and 9 were mailed from the Central Offices of the Ohio Department of Natural Resources on July 17, 1979. The Appendix contains the questionnaire and cover letter used in this study.

Of the 169 questionnaires mailed out, 8 were returned as undeliverable, leaving a total sample size of 161 for the study. Of these 161, 64 were completed and returned by July 30 as recommended in the cover letter. In order to increase the return rate, it was decided that returns would be accepted until the day of final keypunching of data. By this extended cutoff date (August 14, 1979), 72 completed questionnaires were returned, amounting to a 45 percent return rate.

All 72 of the completed questionnaires were usable, although a limited number contained missing data. All data for hypothesis testing were closed-end questions, thus limiting subjective coding.

Study Variables

This study examined 94 variables which are arranged in three groups: organizational characteristic variables, organizational attitude variables, and organizational collection effort variables. Organizational characteristic variables are related to characteristics descriptive of the various organizations. Organizational attitude variables are related to the organizations' attitudes regarding their collection and use of visitor information. Organizational collection effort variables are related to the actual information types gathered and the approaches utilized.

Organizational Characteristic Variables

Organizational characteristic variables are included in this research project to measure certain traits of interpretive organizations as they relate to the collection or non-collection of visitor information. The reason for their inclusion is two-fold: first, they allow for overall description of the sample population and second, they allow for detailed comparisons of the characteristics of organizations engaging in all levels of visitor information collection.

These variables are employed in the description of responses to allow for categorizing of organization types, sizes, and so forth in order to yield an understanding of precisely what the characteristics of the sampled population are. These variables are employed in Hypothesis 1 to explain some of the relationships between collecting and non-collecting organizations. These variables are employed in Hypothesis 2 to further explain the interrelationships between organizations.

Organizational characteristic variables applied to this research project include organization type, acreage, visitation, number of permanent/seasonal/volunteer staff, number of permanent/seasonal/volunteer staff engaged primarily in interpretation, types of interpretive facilities/services provided (also how many and whether seasonal or year-round), number of personal facilities/services provided, number of non-personal facilities/services provided, proportion of total site visitation taking part in one or more interpretive facilities/services.

Organizational Attitude Variables

Organizational attitude variables are included in this research project to measure certain attitudes of interpretive organizations regarding the collection and use of visitor information. They have been included in this study to determine a)whether there are attitudinal differences among the sample population, b)whether there are attitudinal differences between collecting and non-collecting organizations, and c)whether there are any relationships between attitudinal responses and other study variables. These determinations are made in the first descriptive analysis, second descriptive analysis, and correlational analysis, respectively.

Organizational attitude variables include whether or not the organization collects/keeps visitor data/information, the organization's perception of its own collection efforts, the organization's perception of the adequacy of its own visitor data/information, the organization's perception of factors limiting its own ability to collect all of the visitor data/information that could potentially be of benefit, and the organization's attitude regarding the utility of the visitor data/information it collects.

Organizational Collection Effort Variables

Organizational collection effort variables are included in this research project to measure the extent to which interpretive organizations study their visitors. Their inclusion is based on the literature of interpretation, which lists them as important to effective interpretation.

Interpretive literature emphasizes that a variety of approaches should be used by interpreters in studying visitors and that a variety of types of visitor data should be collected. The recommended approaches form one set of organizational collection effort variables in this research project, and the recommended data types form four additional sets of organizational collection effort variables in this research project.

Organizational collection effort variables of the first type include the following: types of collection approaches used, total number of approaches used. The other four organizational collection effort variables include the following types of visitor data: social aggregate data, visitor social group data, visitor perception data, and visitor behavior data. Variables of these latter four types actually used in this study included types of data collected, numbers of each type collected, total number of data types collected, types of data not presently collected but desired if available, numbers of each type of data not collected but desired, total number of data types not collected but desired, types of data not collected nor desired, numbers of each data type not collected nor desired, and total number of data types not collected nor desired.

These organizational collection effort variables were used a)in description of the overall data set, b)to differentiate between collecting and non-collecting organizations, and c)in correlational analysis.

Data Analysis

This section details the techniques used to analyze the data set and to conduct the hypothesis testing. First, statistical techniques employed will be briefly summarized. Second, statistical techniques applied to each hypothesis will be discussed.

Statistical Techniques

The primary statistical techniques utilized are the following:

1. Absolute frequency, relative frequency, and adjusted frequency;
2. Mean, mode, median, variance;
3. Pearson product-moment correlation.

The frequency measures were used in the overall description of the data set and in the descriptive analysis of collecting versus non-collecting organizations. The statistical techniques mean, mode, median, and variance were similarly used in the overall data set description and the descriptive analysis of collecting versus non-collecting organizations. The Pearson correlation was used in the correlational analysis to determine variable interrelationships.

Frequency measures (absolute frequency, relative frequency, and adjusted frequency) are applied in the overall description of the data set and in the testing of Hypothesis 1. These are simply distributional statistics, with absolute frequency expressed as the number of times a given response was given, relative frequency expressed as the percentage of time a given response was given (relative to the total number of responses), and adjusted frequency expressed as the percentage of time a given response was given (relative to total, with missing cases removed from the calculations). These measures serve to show the number or

proportion of cases falling within a particular category in the overall description of the data set. In the testing of Hypothesis 1, they serve to show the number/proportion of cases falling within each category for collecting organizations on one hand and non-collecting organizations on the other.

The descriptive statistics mean, mode, median and variance were also used both in the overall description of the data set and in the descriptive analysis of collecting versus non-collecting organizations. Measures of the distribution of cases within a sample, these statistical techniques serve a function similar to, and complementing, that of the frequency measures. Mean, a measure of central tendency for variables measured at the interval level, is merely the sum of the individual values for each case divided by the number of cases. Mode is the value of the variable which occurs most often within a given set of cases, and as such is another measure of central tendency. Median, another central measure, is expressed as the numerical value of the variable lying exactly on the fiftieth percentile within a given set of cases. Variance, a measure of the dispersion of the data about the mean of an interval-level variable, is expressed as the average squared deviation from the mean and is given by the following formula:

$$\text{Variance} = \frac{\sum_{i=1}^{N} (X_i - \overline{X})^2}{N-1}$$

where N represents the total number of valid cases, X_i equals the score of each case, and $\overline{X}$ equals the mean.

These distributional measures are used in the description of the data set and the testing of Hypothesis 1 to indicate how closely the data fit the tendencies indicated by the previously applied frequency statistics.

The Pearson product-moment correlation coefficient, designed to indicate the "goodness of fit" of a linear regression line to a particular data set, is used in this research project simply to indicate whether a relationship of any type probably exists between any two given variables. Defined as the ratio of covariation to square root of the product of the variation in some variable X and the variation in some variable Y, it is computed with the following formula:

$$\text{Pearson correlation coefficient} = \frac{\sum_{i=1}^{N} (X_i - \bar{X})(Y_i - \bar{Y})}{\left\{\left[\sum_{i=1}^{N} (X_i - \bar{X})^2\right]\left[\sum_{i=1}^{N} (Y_i - \bar{Y})^2\right]\right\}^{1/2}}$$

where X_i = ith observation of variable X
Y_i = ith observation of variable Y
N = number of cases
$\bar{X}$ = mean of variable X
$\bar{Y}$ = mean of variable Y

For the purposes of this research project, an arbitrary value of 0.28 will indicate sufficient correlation between variables to cause rejection of Hypothesis 2. (By this measure, any variation observed will be considered explained in a measure denoted by r^2, where r represents the Pearson correlation coefficient. An r value of 0.28, for example, will be considered to explain r^2=.08 or 8% of the observed variation in the data.) The level of significance is set at .05.

Summary

Research design was quasi-experimental and included descriptive and correlational analysis of multiple measures of visitor data collection among a one-time sample of interpretive organizations in the state of Ohio.

One data set was gathered via self-administered, mail-back questionnaire distributed to Ohio organizations providing at least one interpretive facility/service. This data set provided organizational characteristic variables, organizational attitude variables, and organizational collection effort variables for use in data analysis.

Data were analyzed using raw numbers, percentages, and one correlational measure (Pearson correlation). The analyses were in the form of the test of two null hypotheses.

CHAPTER IV

RESULTS

In this chapter, results of the data analyses and hypothesis tests are reported. First, the data set is described. Second, the findings of the test of Hypothesis 1 are reported. Third, the findings of the test of Hypothesis 2 are reported.

Description of Data Set

In this section, the data set is described, with important points and significant features emphasized.

The sample in this data set consisted of 72 organizations, all of which were usable. Organizational characteristics are presented in Table 1 (by organizational categories), in Table 2 (by size, visitation, and staff), and in Table 3 (by facilities/services provided). Organizational attitude characteristics (whether or not they collect, perception of collection efforts, perception of informational adequacy, perception of factors limiting collection efforts, and attitude regarding the utility of visitor information) are presented in Table 4. Organizational collection effort characteristics are presented in Table 5 (by sources of visitor data) and in Table 6 (by types of data collected--social aggregate, social group, visitor behavior, and visitor perceptions). No data concerning non-respondents (i.e., those who did not return the questionnaire) were collected.

TABLE 1

RESPONDENTS BY ORGANIZATION CATEGORIES (n=72)

CATEGORY OF ORGANIZATION	N	%
Federal facility	4	5.6
State park	18	25.0
Metro/county/city park	4	5.6
Privately owned theme park	6	8.3
Land lab	1	1.4
Environmental education center	5	6.9
Nature center	7	9.7
Nature preserve	6	8.3
Historic site	1	1.4
Museum	4	5.6
Zoo	2	2.8
Farm	3	4.2
Other	11	15.3

TABLE 2

DESCRIPTION OF RESPONDENTS-SIZE, VISITATION AND STAFF

VARIABLE	RESPONSE CATEGORIES	N	%
Acreage	Under 5	1	1.4
	5-24.9	4	5.6
	25-99.9	12	16.9
	100-300	18	25.4
	300 plus	36	50.7
Annual visitation (1978)	Under 1000	4	6.7
	1000-4999	6	10.0
	5000-24,999	12	20.0
	25,000-100,000	17	28.3
	100,000 plus	21	35.0
Annual visitation (1978) who participated in interpretation	Less than 25%	15	25.9
	25-50%	12	20.7
	51-75%	10	17.2
	75% plus	21	36.2
Staff (total)	Permanent 0	6	8.5
	1-3	17	23.9
	4-10	27	38.0
	10 plus	21	29.6
	Seasonal 0	13	18.3
	1-3	12	22.5
	4-10	12	16.9
	10 plus	30	42.3
	Volunteer 0	38	53.5
	1-3	8	11.3
	4-10	6	8.5
	10 plus	19	26.8
Staff (interpretive)	Permanent 0	32	44.4
	1-3	29	40.3
	4-10	9	12.5
	10 plus	2	2.8
	Seasonal 0	31	43.1
	1-3	27	37.5
	4-10	5	6.9
	10 plus	9	12.5
	Volunteer 0	50	69.4
	1-3	6	8.3
	4-10	5	6.9
	10 plus	11	15.3

TABLE 3

FACILITIES/SERVICES REPORTED BY RESPONDENTS

FACILITIES/SERVICES	AVAILABLE SEASONALY N	%	AVAILABLE YEAR ROUND N	%	NOT PROVIDED N	%
Auto tours	10	13.9	5	6.9	57	79.2
Campfire programs/lectures	27	37.5	6	8.3	39	54.2
Live demonstrations	23	31.9	18	25.0	31	43.1
Guided tours/walks/hikes	32	44.4	28	38.9	12	16.7
Living history	13	18.1	9	12.5	50	69.4
Information station	6	8.3	13	18.1	53	73.6
Slide presentations	21	29.2	28	38.9	23	31.9
Publications	8	11.1	30	41.7	34	47.2
Indoor exhibits	16	22.2	21	29.2	35	48.6
Movies	22	30.6	16	22.2	34	47.2
Nature/interpretive/ visitor center	15	20.8	14	19.4	43	59.7
Outdoor animal exhibits	11	15.3	10	13.9	51	70.8
Roadside/trailside exhibits	2	2.8	4	5.6	66	91.7
Self guiding trails	11	15.3	28	38.9	33	45.8
Other	9	12.5	5	6.9	58	80.6

TABLE 4

RESPONDENTS' ORIENTATION TO COLLECTION OF VISITOR RELATED DATA

VARIABLE	RESPONSE CATEGORY	N	%
Collection of data	Yes	35	48.6
	No	37	51.4
Data collection effort	Extensive	4	5.6
	Relatively extensive	7	9.9
	Moderate	23	32.4
	Weak	18	25.4
	Do not collect	19	26.8
"Our organization has adequate visitor data"	Strongly agree	8	11.1
	Agree	30	41.7
	No opinion	16	22.2
	Disagree	16	22.2
	Strongly disagree	1	1.4
Factors limiting data collection*	Organization philosophy	2	2.8
	Budget	24	33.3
	Administrative support	8	11.1
	Staff apathy	3	4.2
	Against regulation	2	2.8
	Inadequate research training	8	11.1
	Manpower/time	45	62.5
	Uncooperative visitors	4	5.6
	Other	2	2.8
	None	19	26.4
Utility of visitor data in influencing decisions	Always influences	15	29.4
	Sometimes influences	31	60.8
	Seldom influences	4	7.8
	Never influences	1	2.0

* percentages are not additive

TABLE 5

RESPONDENTS' SOURCE OF VISITOR DATA

VARIABLE	RESPONSE CATEGORY N OF YES (%)		N OF NO (%)	
Guest/visitor comment book	12	(16.7)	60	(83.3)
Registration forms	30	(41.7)	42	(58.3)
Suggestion boxes	8	(11.1)	64	(88.9)
Unobtrusive observations	25	(34.7)	47	(65.3)
Informal conversations	38	(52.8)	34	(47.2)
Questionnaires	18	(25.0)	54	(75.0)
On-site, formal interviews	4	(5.2)	68	(94.4)
Off-site formal interviews	3	(4.2)	69	(95.8)

TABLE 6

TYPES OF DATA COLLECTED OR DESIRED BY RESPONDENTS

VARIABLE	COLLECTED		DESIRED	
	*N	%	*N	%
Social Aggregate Data				
Age	16	(22.2)	10	(13.9)
Sex	9	(12.5)	6	(8.3)
Education	5	(6.9)	7	(9.7)
Income	2	(2.8)	4	(5.6)
Occupation	2	(2.8)	6	(8.3)
Resdience	23	(31.9)	6	(8.3)
Race	3	(4.2)	2	(2.8)
Marital status	2	(2.8)	1	(1.4)
Size of household	3	(4.2)	0	(0.0)
Number of children	20	(27.8)	3	(4.2)
Social Group Data				
Group type	28	(38.9)	4	(5.6)
N in group	37	(51.4)	3	(4.2)
N of children in group	27	(37.5)	3	(4.2)
Children's age range	14	(19.4)	6	(8.3)
Social class	4	(5.6)	3	(4.2)
Group interrelationships	6	(8.3)	0	(0.0)
Visitor Behavior Data				
N of activities participated in	12	(16.7)	8	(11.1)
Overnight accomodations use	13	(18.1)	4	(5.6)
Pets brought in	4	(5.6)	4	(5.6)
First time or repeat visitor	12	(16.7)	21	(29.2)
Time spent	18	(25.0)	11	(15.3)
Equipment	8	(11.1)	3	(4.2)
N of visitors by activity	20	(27.8)	5	(6.9)
Type of non-participant by activity	4	(5.6)	6	(8.3)
Type of participant by activity	9	(12.5)	7	(9.7)
Visitor Perceptions Data				
Suggestions for programs	11	(15.3)	21	(29.2)
Satisfaction with programs	15	(20.8)	19	(26.4)
Evaluations of programs	16	(22.2)	22	(30.6)
Attitude toward site	12	(16.7)	15	(20.8)
Motives for attendance	5	(6.9)	23	(31.9)
Visitor expectations	10	(13.9)	24	(33.3)

*numbers and percentages not additive

Organizational characteristics data concerning respondents show the following: Twenty-five percent were state parks. Nearly 51 percent were more than 300 acres in size. Thirty-five percent had total annual visitation in excess of 100,000 persons. Thirty-six percent stated that the proportion of the total annual visitation made up of persons attending interpretive activities was in excess of 75 percent. Thirty-eight percent of the respondents had a permanent staff of 4-10, 42 percent had a seasonal staff exceeding 10 persons, and nearly 54 percent had no volunteer staff whatsoever. As for interpretive staff, over 44 percent stated that they had no permanent interpreters, over 43 percent stated that they had no seasonal interpreters, and more than 69 percent stated that they had no volunteers engaged primarily in interpretation. Of seasonal interpretive facilities/services provided, guided tours/walks/hikes were the most often listed, being provided by over 44 percent of the responding organizations. Of the possible year-round interpretive facilities/services listed, publications were the most prevelant, being provided by nearly 42 percent of the organizations. Of the facilities/services not provided either seasonally or year-round, roadside/trailside exhibits were listed nearly 92 percent of the time.

Reported organizational attitude data show a narrow margin between organizations collecting visitor data (48.6 percent of all respondents) and those not collecting such data (51.4 percent of all respondents). Over 32 percent of the responding organizations rated their data collection efforts as "moderate", while nearly 53 percent felt that their present visitor data/information is adequate. The factor seen most often by repondents as limiting collection efforts was manpower/time, which

received nearly 63 percent of all possible responses. Almost 61 percent of the respondents indicated that the visitor information collected sometimes influences their interpretive planning/programming decisions.

Organizational collection effort data concerning responding organizations show the following: The most commonly used source of visitor data/information was informal conversations with visitors (nearly 53 percent of respondents), followed by registration forms (nearly 42 percent) and unobtrusive observations of visitors (nearly 35 percent). Of the possible types of social aggregate data, the most commonly collected by responding organizations was visitor's residence (almost 32 percent), while the most commonly desired (but not presently collected) was visitor's age (almost 14 percent). Of the possible types of social group data, the most commonly collected by responding organizations was number of persons in visitor group (over 51 percent), while the most commonly desired (but not presently collected) was children's age range (over 8 percent). Of the possible types of visitor behavior data, the most commonly collected by responding organizations was number of visitors by activity (nearly 28 percent), while the most commonly desired (but not presently collected) was whether visitors are first time or repeat (over 29 percent). Of the possible types of visitor perceptions data, the most commonly collected by responding organizations was visitor's evaluations of programs (over 22 percent), while the most commonly desired (but not presently collected) was visitor's program/visit expectations (over 33 percent).

Hypothesis 1

The hypothesis test leading to the decision to reject or not reject the proposition is presented. The tested hypothesis is stated in the following null form:

> Hypothesis 1: No difference exists between organizations that do and do not collect visitor related data, when compared on the basis of type of organization, size, visitation, and staff, and facilities/services offered.

Results

The null hypothesis was rejected. Rejection demonstrates that collecting and non-collecting organizations are different when compared on the basis of organizational characteristics variables (those variables listed in Tables 7, 8, and 9).

Hypothesis 1 states that the status of collecting organization/non-collecting organization is independent of each of the organizational characteristics in the data set. The organizational characteristics are divided into three categories, as follows: 1)Type of organization, 2)Size, visitation, and staff, and 3)Facilities/services provided. These three categories each form sub-hypotheses and are summarized in Table 7, Table 8, and Table 9, respectively.

Based upon frequencies, few differences were found between collecting and non-collecting organizations when compared on the basis of organization type (Table 7). Most categories--except for state parks, privately-owned theme parks, nature preserves, and those tagged "other"--exhibited fairly evenly-divided response frequencies. (State parks and nature preserves were skewed toward collecting, while theme parks and 'others' were skewed toward non-collecting.)

TABLE 7

COMPARISON OF COLLECTING/NON-COLLECTING ORGANIZATIONS BY ORGANIZATION CATEGORY N=72

CATEGORY OF ORGANIZATION	COLLECTING N	(%)*	NON-COLLECTING N	(%)*
Federal facility	2	(5.7)	2	(5.4)
State park	11	(31.4)	7	(18.9)
Metro/county/city park	2	(5.7)	2	(5.4)
Privately owned theme park	2	(5.7)	4	(10.8)
Land lab	0	(0.0)	1	(2.7)
Environmental education center	3	(8.6)	2	(5.4)
Nature center	3	(8.6)	4	(10.8)
Nature preserve	5	(14.3)	1	(2.7)
Historic site	1	(2.9)	0	(0.0)
Museum	2	(5.7)	2	(5.4)
Zoo	1	(2.9)	1	(2.7)
Farm	1	(2.9)	2	(5.4)
Other	2	(5.7)	9	(24.3)

TABLE 8

COMPARISON OF COLLECTING/NON-COLLECTING ORGANIZATIONS-SIZE, VISITATION AND STAFF

VARIABLE	RESPONSE CATEGORY	COLLECTING N	COLLECTING %	NON-COLLECTING N	NON-COLLECTING %
Acreage	Under 5	1	(2.9)	0	(0.0)
	5-24.9	1	(2.9)	3	(8.3)
	25-99.9	3	(8.6)	9	(25.0)
	100-300	9	(25.7)	9	(25.0)
	300 plus	21	(60.0)	15	(41.7)
Annual visitation (1978)	Under 1000	2	(6.9)	2	(6.5)
	1000-4999	1	(3.4)	5	(16.1)
	5000-24,999	7	(24.1)	5	(16.1)
	25,000-100,000	10	(34.5)	7	(22.6)
	100,000 plus	9	(31.0)	12	(38.7)
Annual visitation (1978) who participated in interpretation	Less than 25%	6	(20.7)	9	(31.0)
	25-50%	6	(20.7)	6	(20.7)
	51-75%	5	(17.2)	5	(17.2)
	75% plus	12	(41.4)	9	(31.0)
Staff (total)	Permanent 0	2	(5.7)	4	(11.1)
	1-3	17	(20.0)	10	(27.8)
	4-10	7	(48.6)	10	(27.8)
	10 plus	9	(25.7)	12	(33.3)
	Seasonal 0	6	(17.1)	7	(19.4)
	1-3	6	(17.1)	10	(27.8)
	4-10	9	(25.7)	3	(8.3)
	10 plus	14	(40.0)	16	(44.4)
	Volunteer 0	18	(51.4)	20	(55.6)
	1-3	3	(8.6)	5	(13.9)
	4-10	5	(14.3)	1	(2.8)
	10 plus	9	(25.7)	10	(27.8)

TABLE 8 (continued)

COMPARISON OF COLLECTING/NON-COLLECTING ORGANIZATIONS-SIZE, VISITATION AND STAFF

VARIABLE	RESPONSE CATEGORY		COLLECTING N	COLLECTING %	NON-COLLECTING N	NON-COLLECTING %
Staff (interpretive)	Permanent	0	9	(25.7)	23	(62.2)
		1-3	20	(57.1)	9	(24.3)
		4-10	5	(14.3)	4	(10.8)
		10 plus	1	(2.9)	1	(2.7)
	Seasonal	0	11	(31.4)	20	(54.1)
		1-3	17	(48.6)	10	(27.0)
		4-10	4	(11.4)	1	(2.7)
		10 plus	3	(8.6)	6	(16.2)
	Volunteer	0	22	(62.9)	28	(75.7)
		1-3	3	(8.6)	3	(8.1)
		4-10	4	(11.4)	1	(2.7)
		10 plus	6	(17.1)	5	(13.5)

TABLE 9

FACILITIES/SERVICES PROVIDED BY COLLECTING/NON-COLLECTING ORGANIZATIONS (N AND %)*

FACILITIES/SERVICES	SEASONALLY				YEAR ROUND				NOT PROVIDED			
	COLLECTING		NON-COLLECTING		COLLECTING		NON-COLLECTING		COLLECTING		NON-COLLECTING	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Auto tours	5	(14.3)	5	(13.5)	2	(5.7)	3	(8.1)	28	(80.0)	29	(78.4)
Campfire programs/lectures	17	(48.6)	10	(27.0)	4	(11.4)	2	(5.4)	14	(40.0)	25	(67.6)
Live demonstrations	14	(40.0)	9	(24.3)	11	(31.4)	7	(18.9)	10	(28.6)	21	(56.8)
Guided tours/walks/hikes	16	(45.7)	16	(43.2)	16	(45.7)	12	(32.4)	3	(8.6)	9	(24.3)
Living history	9	(25.7)	4	(10.8)	7	(20.0)	2	(5.4)	19	(54.3)	31	(83.8)
Information station	3	(8.6)	3	(8.1)	12	(34.3)	1	(2.7)	20	(57.1)	33	(89.2)
Slide presentations	10	(28.6)	11	(29.7)	18	(51.4)	10	(27.0)	7	(20.0)	16	(43.2)
Publications	5	(14.3)	3	(8.1)	19	(54.3)	11	(29.7)	11	(31.4)	23	(62.2)
Indoor exhibits	10	(28.6)	6	(16.2)	12	(34.3)	9	(24.3)	13	(37.1)	22	(59.5)
Movies	12	(34.3)	10	(27.0)	8	(22.9)	8	(21.6)	15	(42.9)	19	(51.4)
Nature/interpretive/ visitor center	10	(28.6)	5	(13.5)	9	(25.7)	5	(13.5)	16	(45.7)	27	(73.0)
Outdoor animal exhibits	5	(11.4)	7	(18.9)	4	(14.3)	5	(13.5)	26	(74.3)	25	(67.6)
Roadside/trailside exhibits	2	(5.7)	0	(0.0)	3	(8.6)	1	(2.7)	30	(85.7)	36	(97.3)
Self guiding trails	2	(5.7)	9	(24.3)	17	(48.6)	11	(29.7)	16	(45.7)	17	(45.9)
Other	5	(14.3)	4	(10.8)	3	(8.6)	2	(5.4)	27	(77.1)	31	(83.8)

*numbers and percentages additive by rows but only across the same subheadings (collecting or non-collecting)

By looking at frequencies, variance, and measures of central tendencies (mean, median, and mode), differences were identified between collecting and non-collecting organizations when size, visitation, and staff were studied (Table 8, pages 36 and 37). With respect to acreage, there appears to be an overrepresentation of very small facilities (under 100 acres) as non-collectors of visitor data. In annual visitation, those organizations serving between 1,000 and 4,999 persons annually (i.e., relatively low-visitation facilities) appear to be overrepresented as non-collectors of visitor data. With respect to percentage of visitors engaging in interpretive activities, there is a tendency toward overrepresentation of very-low-percentage facilities (less than 25 percent of total annual visitation made up of interpretive activity users) as non-collectors, and there seems to be an overrepresentation of very-high-percentage facilities (more than 75 percent of total annual visitation interpretive) as collectors of visitor data. For the variable 'total staff', there appears to be an overrepresentation of collecting organizations in middle ranges of staffing (1-3 permanent employees, 4-10 seasonal employees, 4-10 volunteers). Finally, with respect to interpretive staff, organizations with no personnel engaged primarily in interpretation tend not to collect visitor data, while those having moderate numbers of interpretive personnel (1-3 permanent interpretive employees, 1-10 seasonal interpretive employees, 4-10 volunteer interpreters) seem to be overrepresented as collectors.

Frequencies, variances, and central tendency measures tend to demonstrate differences between collecting and non-collecting organizations

when facilities/services provided were used as tests (Table 9, page 38). With respect to seasonal facilities/services, there seems to be an overrepresentation of organizations providing campfire programs/lectures, live demonstrations, living history, indoor exhibits, and/or interpretive center as collectors of visitor data. Also with respect to seasonal facilities/services, there seems to be an overrepresentation of organizations providing outdoor animal exhibits and/or self guiding trails as non-collectors of visitor data. The response data for seasonal facilities/services tend to indicate that organizations providing personal types of seasonal programs may be more collection-oriented than those organizations which provide nonpersonal seasonal programs. With respect to year-round facilities/services, collecting organizations tend to provide more facilities/services of both personal and nonpersonal types than do non-collecting organizations; however, there is a tendency toward overrepresentation of personal facilities/services within this collecting organization group. With respect to facilities/services not provided at all, non-collecting organizations seem to be overrepresented in most categories, and that overrepresentation is somewhat greater where personal facilities/services are not offered.

Another test based upon the absolute frequencies in Table 9 involves examination of the rank orders of facilities/services responses given by collecting and non-collecting organizations (see Figure 2). The rank ordering of responses for collecting organizations involved summing the absolute frequencies of seasonal and year-round responses by category, then attaching a rank of 1 to the highest sum, a rank of 2 to the next highest, and so on. (Where two categories had equal sums, they were

both given a rank 0.5 greater than the due rank number, and the next rank number is skipped.) The rank ordering of responses for non-collecting organizations followed a similar procedure, with seasonal and year-round responses summed and ranked.

CATEGORY	SUM FOR COLLECTING(RANK)	SUM FOR NON-COLLECTING(RANK)	RANK DIFFERENCE
Guided tours	32 (1)	28 (1)	0
Slide programs	28 (2)	21 (2)	0
Live demonstrations	25 (3)	16 (5)	+2
Publications	24 (4)	14 (7)	+3
Indoor exhibits	22 (5)	15 (6)	+1
Campfire programs	21 (6)	12 (8.5)	+2.5
Movies	20 (7)	18 (4)	-3
Interpretive center	19 (8.5)	10(10)	+1.5
Self guiding trails	19 (8.5)	20 (3)	-5.5
Living history	16(10)	6(12.5)	+2.5
Information station	15(11)	4(14)	+3
Auto tours	7(12)	8(11)	-1
Other	5(13.5)	6(12.5)	-1
Roadside exhibits	5(13.5)	1(15)	+1.5
Outdoor animals	4(15)	12 (8.5)	-6.5

FIGURE 2.
RANK ORDERS FOR COLLECTING AND NON-COLLECTING ORGANIZATIONS

Based upon the rank order information presented in Figure 2, it appears that the facilities/services most popular with both collecting and non-collecting organizations are guided tours/walks and slide presentations. The rank differentials in Figure 2 indicate a strong tendency for collection of visitor data among organizations which provide personal types of interpretive facilities/services, and there seems to be

an opposite tendency toward non-collection among organizations which provide nonpersonal types of interpretive facilities/services.

Summary

Hypothesis 1 was rejected. Examination of the data from responding organizations indicates the following:

1. Few differences exist between frequencies of collecting and non-collecting organizations in the state of Ohio, when compared by organization type.
2. Numerous differences exist between collecting and non-collecting Ohio organizations, based upon size, visitation, and staff.
3. Several differences exist between collecting and non-collecting organizations in the state of Ohio, based upon facilities/services they provide.

Hypothesis 2

The hypothesis test leading to the decision to reject or not reject the proposition is presented. The tested hypothesis is stated in the following null form:

> Hypothesis 2: No significant correlations exist between size, visitation, staff, number of seasonal interpretive activities offered, number of year-round activities offered, total number of personal interpretive activities offered, total number of nonpersonal activities offered, the organization's perceptions of its visitor data collection efforts, the organization's perception of the adequacy of data available, the total number of approaches used to gather data, total number of social aggregate types of data collected or desired, total number of social group types of data collected or desired, total number of visitor perceptions types of data collected or desired, and the organization's report of the influence visitor data has in decision making.

Results

The null hypothesis was rejected. Rejection demonstrates that significant correlations exist between one or more pairs of the above study variables. Significant correlations were considered to be demonstrated by a Pearson product-moment correlation coefficient of 0.28 or greater at a statistical significance level of 0.05 or beyond.

Hypothesis 2 states that any interrelationships between the given variables are solely coincidental and due to nothing more than the random operation of chance. Therefore, any variations in the data should be explainable solely in terms of chance happening.

Using Pearson correlation coefficients and calculations of the statistical significance for the relationships between pairs of variables listed in the hypothesis, several significant correlations were found. Table 10 lists the pairs of variables between which significant correlations exist, along with the values of r (the Pearson correlation coefficient) and α (the statistical significance of each correlation). Positive values of r denote direct relationships between variables (i.e., as the value of one variable increases, the value of the other will likewise increase), while negative values of r denote inverse relationships between variables (i.e., as the value of one variable increases, the value of the other variable decreases). All of the correlations in Table 10 are significant well beyond the 0.05 level, indicating that these results could be attributed to pure chance fewer than five times out of a hundred. Stated another way, the α values listed in Table 10 indicate that there is a greater than 95% probability (actually, greater than 98% probability) that these results are due to some mechanism(s) other than chance.

The first of these significant correlations involve the size (total acreage) of the responding organization. There is a direct relationship between size and the number of seasonal activities provided, as well as a direct relationship between size and the number of personal activities provided. An inverse relationship exists between size and the organization's perceptions of its visitor data collection efforts.

The visitation of the organization (expressed as total number of visitors in the past year) is directly correlated with the total number of nonpersonal activities provided.

TABLE 10

SIGNIFICANT CORRELATIONS BETWEEN VARIABLE PAIRS

VARIABLE X / VARIABLE Y	r	α
Size / Number of seasonal activities offered	+0.37	0.001
Size / Number of personal activities offered	+0.30	0.005
Size / Organization's perception of its efforts	-0.30	0.005
Visitation / Number of nonpersonal activities	+0.34	0.004
Total seasonal staff / Social aggregate data	+0.28	0.008
Total volunteer staff / # seasonal activities	-0.30	0.006
Total volunteer staff / # year-round activities	+0.40	0.001
Total volunteer staff / Social group data	+0.37	0.001
Total volunteer staff / Visitor perceptions data	+0.34	0.002
Permanent interpreters / # seasonal activities	-0.28	0.008
Permanent interpreters / # year-round activities	+0.38	0.001
Seasonal interpreters / Social aggregate data	+0.32	0.003
Seasonal interpreters / Visitor perceptions data	+0.29	0.008
Volunteer interpreters / # seasonal activities	-0.40	0.001
Volunteer interpreters / # year-round activities	+0.55	0.001
Volunteer interpreters / Social group data	+0.32	0.003
Volunteer interpreters / Visitor perceptions data	+0.33	0.002
Number of nonpersonal activities offered / Influence of data on decisions	-0.30	0.019
Organization's perception of its efforts / Social group data	-0.42	0.001
Number of collection approaches used / Social group data	+0.61	0.001
Number of collection approaches used / Visitor perceptions data	+0.52	0.001
Number of collection approaches used / Influence of data on decisions	-0.29	0.019

Another group of significant correlations involves staffing levels of the organization. A significant correlation directly relates seasonal staff size with the total number of social aggregate types of data collected. Total volunteer staff size is inversely correlated with the number of seasonal activities provided, but directly correlated with number of year-round activities provided, directly correlated with total number of social group types of data collected, and directly correlated with total number of visitor perceptions types of data collected. Permanent interpretive staff size is inversely correlated with the number of seasonal activities provided but directly correlated with the number of year-round activities provided. Seasonal interpretive staff size is directly correlated with both the total number of social aggregate types of data collected and the total number of visitor perception types of data collected. The size of the organization's volunteer interpretive staff is inversely correlated with the number of seasonal activities provided; however, it is directly correlated with the number of year-round activities provided, with the total number of social group types of data collected, and with the total number of visitor perceptions types of data collected.

A significant inverse correlation exists between the total number of nonpersonal activities offered by an organization and the organization's report of the influence which visitor data has on its decision making.

Another significant inverse correlation is that between the organization's perceptions of its visitor data gathering efforts and the total number of social group types of data collected.

The final significant correlations found to exist between the variables given in Hypothesis 2 are those involving the total number of approaches used in gathering visitor data. Direct correlations exist between the total number of approaches used and both the total number of social group types of visitor data collected and the total number of visitor perceptions types of data collected. An inverse correlation exists, however, between the total number of approaches used and the organization's report of the influence which visitor data has on its decision making.

Summary

Hypothesis 2 was rejected. Examination of the data from responding organizations indicates the following:

1. Significant correlations exist between organization size, number of seasonal activities provided, number of personal activities provided, and the organization's perceptions of its visitor data gathering efforts.
2. A significant correlation exists between total annual visitation and the total number of nonpersonal activities provided by the organization.
3. Significant correlations exist between multiple measures of staffing and the total number of social aggregate types of data collected, number of seasonal activities provided, number of year-round activities provided, total number of social group types of data collected, and total number of visitor perceptions types of data collected.
4. A significant correlation exists between the total number of nonpersonal activities provided and the organization's report of the influence which visitor data has on its de-decision making.

5. A significant correlation exists between the organization's perceptions of its own visitor data collection efforts and the total number of social group types of data collected.

6. Significant correlations exist between the total number of visitor data gathering approaches used and the total number of social group types of visitor data collected, the total number of visitor perceptions types of data collected, and the organization's report of the influence which visitor data has on its decision making.

Summary of Results

The results of the data analysis and hypothesis testing were presented in three sections: a description of the data, Hypothesis 1, and Hypothesis 2.

The data set was described in terms of its most frequently occuring responses. These responses were categorized as organizational characteristics data, organizational attitude data, and organizational collection effort data.

Hypothesis 1 was rejected on the basis of large variations between certain frequencies which seemed to indicate that real differences did exist between the responses of collecting and non-collecting organizations.

Hypothesis 2 was rejected on the basis of statistical tests which indicated that a number of the study variables exhibited significant correlations.

CHAPTER V

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents a discussion of the research results, conclusions regarding the collection and non-collection of visitor information by Ohio interpretive organizations, and recommendations for action.

Discussion of Research Results

This section presents discussion of the research results from the data description and each of the two hypothesis tests.

Data Set

The description of the data set in the previous chapter indicated only the most frequent responses, which might give the impression that the sample was quite homogeneous. Such was not, in fact, the case. The organization types and characteristics were diverse, the attitudes expressed about visitor analysis covered a range of professional stances, and the organizational collection efforts ranged from none at all to fairly comprehensive.

The picture derived from examination of only the most frequent responses regarding organizational characteristics is that of state parks over 300 acres in size, with annual visitations exceeding 100,000 persons (more than 75% of whom attended interpretive activities). These organizations would appear to have permanent staffs of 4-10, seasonal staffs of more than 10, and no volunteers. None of the permanent employees, seasonal employees, or volunteers would be engaged primarily in interpretation, although the organizations would almost certainly provide

guided tours/walks/hikes seasonally and interpretive publications on a year-round basis.

The picture derived from examination of only the most frequent responses about organizational attitudes is similarly oversimplistic. It indicates that the above organizations might or might not collect visitor data. If they do collect, they probably rate their collection efforts as "moderate", and they would appear to feel that their present visitor data is adequate for their needs. If they feel that they lack certain elements of visitor data, then they are most apt to blame manpower/time constraints as the limiting factor. If these organizations do collect visitor data, then they are apt to use it at least some of the time in interpretive decision making.

The observed trends in most frequent responses to organizational collection effort questions yield the final facet to the somewhat misleading picture so far described. Based only upon the most frequent responses, it would appear that the organizations rely mainly upon informal conversations with visitors to obtain needed data, with registration forms and unobtrusive observations of visitors possibly also playing roles in collection. If the organizations collect social aggregate types of visitor data, they likely ask for visitor's residence, while visitor's age is often desired but not collected. If they collect social group types of data, the organizations probably note the number of persons per visitor group, while the age ranges of the children in the group are possibly desired but not collected. If the organizations collect visitor behavior data, it is likely to consist of marking the attendance at each activity, while an additional item desired but not collected might be whether visitors are first time or repeat. If they collect visitor

perceptions types of data, these organizations probably solicit visitor evaluations of interpretive activities, while data on visitor expectations is likely to be desired but not collected.

While not grossly misleading, these indications--based solely on the most frequent responses for each organizational characteristic, attitude, and measure of effort--do fail to provide a complete picture, in that they disregard important lower frequency responses. These lower frequency responses are important in two ways. First, they serve to fill in the description of the data, thereby showing important trends otherwise overlooked in a cursory examination of only the most frequent responses. Second, they serve to mark possible misdirected responses that were due to problems with questionnaire readability.

Lower frequency responses in this data set indicate the following trends:

1. A relatively large number of respondents classified themselves in the category "other". Based upon written specifications by respondents, it was determined that these organizations were primarily arboretums--an interpretive organization type which, as is now apparent, is well-represented in the state of Ohio.
2. Nature centers, nature preserves, and privately-owned theme parks also appear to be fairly well represented.
3. As organizational size increased, category by category, so did the frequencies of response--indicating that, among the respondents and possibly the state as a whole, there are more large-sized interpretive organizations than small-sized ones.

4. Annual visitation exhibited a trend similar to that shown by size: as visitation increased, category by category, so did response frequencies. There are more heavily-visited than lightly-visited interpretive organizations among the respondents and possibly within the state as a whole.

5. Few of the responding organizations had large--or even moderate--numbers of personnel engaged primarily in interpretation.

6. Personal types of interpretive activities tended to dominate seasonal offerings, while nonpersonal types tended to be emphasized more in year-round offerings.

7. With declining visitor data collection effort, category by category, came increasing frequencies of response. In the sample--and possibly the population as a whole--most interpretive organizations classify their visitor data collection efforts as moderate to nonexistent.

8. Organizational views of visitor data adequacy exhibited fairly strong central tendency. They were skewed toward agreement with the view that their present data was adequate, but they ranged through "no opinion" to "disagree".

9. In addition to manpower/time, a large number of organizations cited budgetary constraints as a factor limiting visitor data collection.

10. A majority of the respondents stated that visitor data does have some influence/utility in interpretive decision making.

11. Guest/visitor comment books, suggestion boxes, questionnaires, and formal interviews appeared to be underrepresented as approaches to visitor data collection.

12 The most commonly desired social aggregate data--whether presently collected or not--appeared to be visitor's residence, age, sex, and education.

13. Social group data seemed to be either presently collected or not desired at all.

14. The most commonly desired visitor behavior data--whether or not presently collected--appeared to be amount of time spent by visitors at the site, number of visitors per interpretive activity, whether visitors are first-time or repeat, number of activities participated in by each visitor group, and type of overnight accomodations used.

15. Most visitor perceptions data seemed to be desired (but not collected) by the respondents.

These trends are considered in the drawing of conclusions from the research results.

The lower frequency responses can also be used to reveal response frequencies that may possibly represented responses misdirected by problems with questionnaire readability. Two instances of this possible misdirection, as pointed to by frequencies, were conspicuous.

First, the proportion of total visitation made up of interpretive attendance exhibited a marked disparity of frequencies between very-low and very-high-proportion categories. This may indicate that there was confusion among some respondents about whether total site visitation or total interpretive attendance was to be used as denominator in the calculation of the interpretive proportion of total attendance. Unsolicited comments written by respondents tended to confirm that this confusion did, in fact, exist.

Second, the response frequencies for the social aggregate data type "numbers of children" and for the social group data type "number of children in group" exhibited quite similar tendencies toward overrepresentation as collected/desired types. This may indicate that there was some confusion of the two types by the respondents. The similar wording

of the two in the questionnaire (see Appendix) may have led some of the respondents to mark both types or to check the unintended type. Unsolicited comments written by the respondents confirmed the existence of this confusion.

Hypothesis 1

Examination of the frequency responses from Table 7 (page 35), Table 8 (pages 36 and 37), and Table 9 (page 38) indicates the following points:

1. State parks and nature preserves exhibited relatively strong tendencies toward collection of visitor data, while privately-owned theme parks and "others" (primarily arboretums) tended toward non-collection. Comments written by the respondents indicate that manpower/time and budgetary constraints are offset in state parks and nature preserves by favorable administrative policies and staff interest, while they are aggravated in theme parks and arboretums by administrative/staff apathy and reluctance to risk inconveniencing the visitor.

2. While the largest-sized organizations tended to do most of the visitor data collecting, those with the largest visitations did not. Instead, the organizations with moderate-to-high visitations did the most collecting. In view of the comments made by respondents, it appears that the very-highly-visited sites are those where manpower and time are devoted to day-to-day maintenance, not interpretive research. (Many of the large acreage sites may not be very highly visited, thus more manpower/time is available.)

3. Organizations with less than 25% interpretive visitation tended to be non-collectors of visitor data, while those with interpretive visitation exceeding 75% of total tended to be collectors. Logically, the much greater incidence of staff contact with interpretive visitors in the latter situation would be expected to inspire collection.

4. The staff sizes which tended to optimize collection were in the mid-to-high ranges with respect to both total and interpretive staffs. Very high and very low staff levels generally exhibited non-collecting tendencies. This favoring of mid levels as collectors probably indicates that very low levels are understaffed and lack total manpower, while very high levels are indicative of busy organizations whose manpower is tied up in pursuits other than interpretive research.

5. Collecting organizations seemed to offer more personal interpretive services than did non-collecting organizations. The non-collecting organizations tended to favor nonpersonal types of interpretive services. As with number 3, page 54, the key explanation here would seem to involve the amount of contact between interpreters and visitors. The amount of such contact would certainly be greatest in personal interpretive situations, thus providing the opportunity--and possibly the need--for visitor study.

All of these points serve to emphasize the very real differences that were found to exist between collecting and non-collecting organizations. It was the existence of these differences that led to the rejection of Hypothesis 1.

Hypothesis 2

Examination of the correlational data provided for selected variable pairs in Table 10 (page 45) indicates the following relationships:

1. Organization size is directly related to number of seasonal activities provided and to number of personal activities provided. This is consistent with the findings of the previous section which indicated that larger size and greater number of personal programs were associated with the same organization group (i.e., collectors of visitor data).

2. Total visitation was found to directly correlate with total number of nonpersonal activities provided. This tends to support the findings of the previous section, where higher levels of both visitation and nonpersonal programming were found in association with the same organizational group (i.e., non-collectors of visitor data).

3. Various measures of staff size were found to directly correlate with the amounts of social group and visitor perceptions data collected. The greater the volunteer and interpretive staff, the greater the amounts of these two data types were found to be collected. This may be an indication that the more well-staffed organizations are the ones collecting these newer (Mullins, 1979; Cherem and Traweek, 1977) types of visitor data.

4. Total number of nonpersonal activities offered by the organization was found to inversely correlate with the organization's report of the influence which visitor data has on interpretive decision making. As the previous discussions have indicated, the greater the number of nonpersonal activities offered, the less visitor data collection is undertaken. Logically, if an organization collects few or no types of visitor data, then that organization could be expected to place little value on the use of visitor data in general.

5. Organizational perceptions of visitor data gathering efforts were found to inversely correlate with amount of social group types of visitor data collected. In other words, the organizations which rated their own efforts highly tended also to be the ones collecting the least amounts of social group data. This relationship can probably be explained by stating that if an organization already feels that its efforts are adequate--regardless of the level of collection--it is not likely to increase its efforts to include social group data collection.

6. Total number of data collection approaches used directly correlated with amounts of social group and visitor perceptions data collected. As with number 3, page 56, this may be an indication of somewhat more progressive organizations collecting these relatively new types of visitor data, while more traditional organizations using fewer approaches do not collect these types.

7. In additon to the correlations used to test Hypothesis 2, another significant set--regarding the total amount of collection undertaken--were found but not reported in the chapter on research results. These show that total collection is directly correlated with various measures of staff size, with number of personal activities provided, with proportion of visitation interpretive, and with total number of collection approaches used. These correlations tend to confirm not only the test of Hypothesis 2, but the findings from the test of Hypothesis 1 as well.

Conclusions

The conclusions drawn from this research project that contribute to the knowledge and theoretical development of environmental interpretation are the following:

1. Variables useful in the study of collection and non-collection of visitor information by interpretive organizations include three major types; organizational characteristics, organizational attitudes, and organizational collection efforts. Organizational collection effort variables include four major sub-variables or data types (social aggregate data, social group data, visitor behavior data, and visitor perceptions data).

2. Certain organizational characteristics variables, organizational attitude variables, and organizational collection effort variables discriminate between organizations which do and do not collect visitor information.

3. Certain organizational characteristics variables, organizational attitude variables, and organizational collection effort variables appear to be significantly interrelated.

4. Very few of the responding organizations reported that they used all of the possible visitor data collection approaches or gathered all of the possible types of visitor data, while many cited manpower/time and/or budgetary constraints as factors limiting their abilities to collect all desired visitor data. These and other tendencies were taken as indications that inadequacies exist in the present state-of-the-art of visitor analysis by Ohio interpretive organizations.

5. Organizations collecting visitor information were found to be large in size, with moderately high visitation, middle-range staff size, relatively many seasonal interpretive activities, relatively many personal types of interpretive activities, very-high-range proportion of total annual visitation made up of interpretive attendance, moderately low self-rating of visitor data collection efforts, mediocre self-rating of data adequacy, and firm commitment to put visitor data to use in planning/programming.

6. Organizations not collecting visitor information were found to be relatively small, with either very low or very high visitation, either very few or many staff, relatively many nonpersonal types of interpretive activities, low proportion of interpretive visitation, high self-rating of collection efforts, self-assured attitude about present data adequacy, and little use for visitor data.

7. The most significant variables associated with the collection of visitor information appear to be total acreage, total annual visitation, total staff size, interpretive staff size, total number of seasonal interpretive activities provided, total number of personal types of activities provided, total number of nonpersonal types of activities provided, proportion of total annual visitation made up of interpretive attendance, organizational perceptions of collection efforts, organizational perception of data adequacy, total number of visitor data collection approaches used, total number of social group types of data collected, total number of visitor perceptions types of data collected, and organizational view of visitor data utility.

Recommendations

Based upon the discussion of the research results and the conclusions drawn, a set of recommendations is presented. These recommendations are divided into four parts: recommendations for further research, implications for interpretive organizations, suggested techniques for data collection, and application of data.

Recommendations for Further Research

As detailed in the literature review earlier, there seems to be a current lack of information on people as the audience for interpretation. This research project has demonstrated that at least one sample of interpretive organizations is exercising inadequate visitor analysis. These two facts speak for the need to increase applied research in interpretive visitor analysis.

Specific recommendations for further research are:

1. Perform other baseline studies similar to this one, in order to define the state-of-the-art, delineate problem areas, and provide base data sets for ongoing trend studies.
2. Determine the needs of interpretive organizations, in terms of feasible methods of visitor analysis, and develop the appropriate vehicles for such analysis.
3. Lastly, strive to make the results of visitor-related research available to working interpreters, so that the concepts of interpretation may become woven into the fabric of its practice.

Implications for Interpretive Organizations

For some time, interpretive researchers have decried the lack of studies regarding the visitor. On the one hand, some studies have been published regarding specific visitor groups and visitor types, but on the other hand, few studies have been conducted regarding visitors in general. For this reason, there is no handy reference regarding who visitors are and which particular interpretive facilities/media/services will be most successful with them. In order to tailor interpretation to the visitors at any one particular site, the organization managing that site must study those particular visitors.

Specific implications for interpretive organizations are:

1. Interpretive organizations must come to realize the importance of systematic visitor analysis, and they must begin to pursue it actively. This may well involve adding to their own expertise by consulting with interpretive researchers from other organizations, universities and private firms.

2. After receiving some direction from researchers, and after having allocated some level of funding, interpretive organizations must then incorporate visitor analysis into their statements of policy.

3. Implementation of collection efforts and application of results to the decision-making process must form the next organizational steps.

4. In the long term, interpretive organizations should make an assessment of the value of visitor analysis input to the organizations' decision making and operations.

Suggested Techniques for Data Collection

Based on the discussion of research results and the conclusions drawn, it appears that some interpretive organizations lack knowledge about ways to collect visitor data. While some methods are used extensively--informal conversations, for instance--others are not (suggestion boxes, guest books, and formal interviews). Because the number of collection approaches used was found to be significantly related to organizations' collection or non-collection and use or non-use of visitor data, a list of suggested techniques should be valuable to interpretive organizations considering visitor data collection.

Specific suggested techniques for data collection are:

1. Utilize the services of the organization's entire staff, especially any volunteers that are available. Involvement of the entire staff inspires a cooperative, unified atmosphere conducive to directed change, and use of volunteers saves on manpower/time and money, whether by using free help in actual collection or by freeing paid employees to do the collection.

2. Collect visitor data at all types of interpretive activities, seasonal and year-round, personal and nonpersonal. This will assure that the data represents a cross-section of users, rather than a sample of only one type of user--such as the specialized personal program visitor discovered by Mullins (1979). Collection at seasonal and year-round activities should present no problem, and collection at personal activities is not difficult for a trained interpreter. Collection at nonpersonal activities takes a bit more creativity, though, as attested to by the dropoff of collection discovered by this research project to exist among organizations offering this type of programming. For nonpersonal activities it will be necessary to develop some new approaches. One idea would be to use tear-off questionnaires in the back pages of self guided trail brochures and other publications. Another might be to implement the use of recording devices such as the recording quizboard (Wagar, 1972b) in interpretive centers and exhibits.

3. Utilize a variety of approaches: this will assure that the data is available under a wide variety of conditions. Guest/ visitor comment books, registration forms, suggestion boxes, and simple questionnaires are ideal in nonpersonal, underfunded situations because they do not usually inconvenience visitors and they do not involve large investments of employee time. Unobtrusive visitor observation (Hanna and Silvy, 1978) is an excellent approach in a variety of situations because it does not inconvenience visitors, is free of visitor biases, is selective for virtually any desired sample group, and does not require the approval of the U.S. Office of Management and Budget as do other approaches when used by Federal organizations. Informal conversation with visitors is an approach that is used by many interpreters, its only major drawback being that the data may be hard to quantify. More complex

questionnaires and formal interviews, while often expensive to administer and analyze, are ideally suited to situations where systematic, scientific analyses are required.

Application of Data

Data types which can be collected and applied include social aggregate, social group, visitor behavior, and visitor participation measures. Social aggregate data types indicate essentially who the visitors are and from what backgrounds they come. These types of data should be used to give the on-line interpreters a feel for their audiences' background make-ups. Social group data types indicate the nature of the social groups in which visitors interact with the site and its activities. These data types should be used for planning of facilities to accomodate visitors and visitor groups, as well as for providing on-line interpreters with information useful in the programming of interpretive services. Visitor behavior data types indicate the behaviors of visitors and especially of interpretive participants. They should be used by on-line interpreters for interpretive programming and evaluation. Visitor perceptions data types indicate how the visitors perceive the site, the interpretive activities offered there, and the organization in general. They should be used extensively in the evaluation and modification of interpretive activities and policies.

By actively pursuing the collection of visitor data and applying the results of careful data analysis, interpretive organizations will progress to the level where they need not fear that they are failing to successfully communicate with their all-important audience, the visitor.

LITERATURE CITED

Alderson, W. T. and S. P. Low. 1976. Interpretation of Historic Sites. American Association for State and Local History, Nashville.

Badaracco, R. J. and J. Scull. 1978. Megascale Interpretive Planning. The Interpreter 10(3): 4-10.

Barkley, W. D. 1970. Teaching, Communicating, and Interpreting. In: More Effective Communication: A Symposium. Canadian Wildlife Service, Ottawa, pp. 69-79.

Beechel, J. M. 1974. Interpretation for Handicapped Persons. Unpublished Masters thesis. University of Washington, Seattle.

Boulanger, F. D. and J. P. Smith. 1973. Educational Principles And Techniques For Interpreters. USDA Forest Service General Technical Report PNW-9, Pacific Northwest Forest And Range Experiment Station, Portland, OR.

Bultena, G., D. Field, and R. Renninger. 1978. Interpretation For The Elderly--A Study Of The Interpretive Interests Of Retired National Parkgoers. Journal of Interpretation 3(2): 29-32.

Cherem, G. J. 1977a. Position Paper On Interpretive Research. The Ohio State University School of Natural Resources, Columbus, OH.

Cherem, G. J. 1977b. The Professional Interpretor: Agent For An Awakening Giant. Association Of Interpretive Naturalists Journal 2(1): 3-16.

Cherem, G. J. and D. E. Traweek. 1977. Visitor Employed Photography: A Tool For Interpretive Planning On River Environments. In: Proceedings: River Recreation Management and Research Symposium. USDA Forest Service General Technical Report NC-28, North Central Forest Experiment Station, St. Paul, MN, pp. 236-244.

Dick, R. E., E. Myklestad, and J. A. Wagar. 1975. Audience Attention As A Basis For Evaluating Interpretive Presentations. USDA Forest Service Research Paper PNW-198, Pacific Northwest Forest And Range Experiment Station, Portland, OR.

Field, D. R. and J. A. Wagar. 1976. People and Interpretation. Chapter 3 in: G. W. Sharpe (ed.), Interpreting The Environment. John Wiley & Sons, New York.

Foley, J. P. 1978. Evaluation Of Interpretation And Extension Programs In The National Parks Of Canada. Parks Canada, Ottawa.

Grater, R. K. 1976. The Interpreter's Handbook. Southwest Parks and Monuments Association, Arizona.

Hammitt, W. E. 1978. A Visual Preference Approach To Measuring Interpretive Effectiveness. Journal Of Interpretation 3(2): 33-37.

Hanna, J. W. and V. A. Silvy. 1978. Visitor Observations For Interpretive Programming. Texas A & M University Departmental Technical Report No. 78-9, Texas Agricultural Experiment Station, College Station, TX.

Irwin, L. L. 1978. Visitor Response To Interpretation At Selected Historic Sites. Masters thesis. Texas A & M University, College Station, Tx.

Isaac, S. and W. B. Michael. 1971. Handbook In Research And Evaluation For Education And The Behavioral Sciences. Ed ITS publishers, San Diego.

Machlis, G. and M. McDonough. 1978. Children's Interpretation: A Discovery Book for Interpreters. National Park Service Cooperative Park Studies Unit, University of Washington, Seattle.

McConnell, J. 1978. Interpretive Plannin- In The Forest Service. The Interpreter 10(3): 11, 14.

McDonough. M., D. R. Field, and J. Gramann. 1977. Applying Sociological Research to Interpretation in the Northwest. The Interpreter 9(3): 7-11.

Melvin, R. 1975. A Guide To Ohio Outdoor Education Areas. Ohio Academy of of Sciences/Ohio Department of Natural Resources, Columbus, OH

Morfoot, C. and B. F. Blake. 1978. Evaluations of Environmental Interpretation--Pitfalls and Opportunities. The Journal of Environmental Education 10(1): 23-31.

Morse, P. J. 1977. Attendance/Non Attendance at Interpretive Programs. The Interpreter 9(3): 19-21.

Mullins, G. W. 1979. Participation And Nonparticipation In Interpretation: A Study of People, Places, And Activities. Ph.D. dissertation, Texas A & M University, College Station, TX.

Mullins, G. W. and J. W. Hanna. 1977. AIN Colloquium on Interpretive Research. The Interpreter 9(3): 17-19.

Peart, B. and J. G. Woods. 1977. A Communication Model for Interpretive Planning. The Interpreter 9(3):21-23.

Potter, D. R., et al. 1972. Questionnaires for Research: An Annotated Bibliography on Design, Construction and Use. USDA Forest Service Research Paper PNW-140, Pacific Northwest Forest And Range Experiment Station, Portland, OR.

Putney, A. D. and J. A. Wagar. 1973. Objectives And Evaluation In Interpretive Planning. The Journal of Environmental Education 5(1): 43-44.

Reyburn, J. H. 1977. Freeman Tilden On Evaluation. Association Of Interpretive Naturalists Journal 2(1): 17-18.

Shiner, J. W. and E. L. Shafer, Jr. 1975. How long do people look at and listen to forest-oriented exhibits? USDA Forest Service Research Paper NE-325, Northeastern Forest Experiment Station, Upper Darby, PA

Silvy, V. A. 1977. The Function Of Interpretation As Perceived By Park Visitors And Interpreters. Masters thesis. Texas A & M University, College Station, TX.

Tilden, F. 1957. Interpreting Our Heritage. University of North Carolina Press, Chapel Hill, NC.

Veverka, J. A. 1978a. Pacing Interpretive Services: A Concept for Interpretive Planners. The Interpreter 10(2): 16-22.

Veverka, J. A. 1978b. Why No One Comes To Your Interpretive Programs, or An Examination of Park Visitor Motives For Interpretive Program Topic Preferences. The Interpreter 10(3): 17-20.

Veverka, J. A., J. R. Willis etal. 1977. Malabar Farm: An Interpretive Planning Process. The Ohio State University School of Natural Resources, Columbus, OH.

Wagar, J. A. 1972a. Evaluating Interpretation And Interpretive Media. AIN meeting, Callaway Gardens, Pine Mountain, GA.

Wagar, J. A. 1972b. The Recording Quizboard: A Device For Evaluating Interpretive Services. USDA Forest Service Research Paper PNW-139, Pacific Northwest Forest And Range Experiment Station, Portland, OR.

Wagar, J. A. 1976. Research in Interpretation. Chapter 26 in: G. W. Sharpe (ed.), Interpreting The Environment, John Wiley & Sons, New York.

Wagar, J. A., G. W. Lovelady, and H. Falkin. 1976. Evaluation Techniques For Interpretation: Study Results From an Exhibition on Energy. USDA Forest Service Research Paper PNW-211, Pacific Northwest Forest And Range Experiment Station, Portland, OR.

Washburne, R. F. and J. A. Wagar. 1972. Evaluating Visitor Response To Exhibit Content, Curator 15(3): 248-254.

Whited, N. 1978. The Visitor Comes Forst. The Interpreter 10(2):10.

Wolf, W., Womble, P., and D. R. Field. 1977. The Interpreter 9(4):17-22.

APPENDIX

RESEARCH INSTRUMENTS

OSU

The Ohio State University

Division of
Environmental Education
124 West 17th Avenue
Columbus, Ohio 43210
Phone 614 422-5589

July 9, 1979

Dear Recipient:

I am a student in the School of Natural Resources at the Ohio State University. The enclosed questionnaire is part of a research project that I am undertaking in the field of environmental interpretation.

You are asked to take approximately twenty minutes to complete this questionnaire concerning your organization's visitorship. These data will be used in an ongoing Interpretive Research Project designed to gain an understanding of interpretation, information, and education services offered by natural, cultural, historical and recreational organizations in the state of Ohio. To aid in meeting deadlines, I would very much appreciate receiving your completed response by July 30.

All data received will be collapsed into categories, thus insuring the anonymity of individual responding organizations. Please make any comments you like at the end of the questionnaire.

Your immediate response to this questionnaire will be appreciated, and upon request resulting reports will be made available to you.

Thank you very much for contributing to this exciting field of Natural Resources!

Sincerely,

Michael K. Maynard

Michael K. Maynard
Honors Student
School of Natural Resources

Approved by:

Gary W Mullins

Gary W. Mullins, Advisor
Assistant Professor
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MKM/wll

School of Natural Resources
The Ohio State University
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INTERPRETIVE RESEARCH PROJECT

INSTRUCTIONS: Please respond to each question by marking the appropriate answer. Where no appropriate answer is provided, please mark "Other" and specify. Upon completion of this questionnaire, please fold, place in the pre-addressed stamped envelope, and mail. Note that since neither your signature nor address is requested--all responses are anonymous.

PART I

This portion of the questionnaire requests information concerning your organization and its visitorship.

How would you best characterize your organization? (Please check one.)

___Federal facility/park	___Land lab	___Historic site
___State park	___Environmental education center	___Museum
___Metro/county/city park	___Nature center	___Zoo
___Privately owned theme park	___Nature preserve	___Farm

___Other (please specify) _____

What is the approximate total acreage of the site where your facility is located?

_____acres.

If more than one site (park, etc.) please explain: _____

What was the visitation to your site during the last calendar year? _____visitors

Please list the total number of permanent, seasonal, and volunteer staff employed on your site.

_____permanent; _____seasonal; _____volunteer

Please list the numbers of permanent, seasonal, and volunteer staff engaged primarily in visitor information/interpretive services on your site (e.g. tour guides, speakers).

_____permanent; _____seasonal; _____volunteer

Please check all of the following facilities/services provided for visitors to your site, noting whether they are seasonal or year round.

SEA.	*YR*		*SEA.*	*YR*	
___	___	Auto tours	___	___	Informational/interpretive publications
___	___	Campfire programs/lectures	___	___	Indoor exhibits
___	___	Live demonstrations	___	___	Movies
___	___	Guided tours/walks/hikes	___	___	Nature/interpretive/visitor center
___	___	Living history	___	___	Outdoor animal exhibits
___	___	Information stations	___	___	Roadside/trailside exhibits
___	___	Slide presentations	___	___	Self-guiding trails
___	___	Other (please specify) _____			

What proportion of your visitors for the last calendar year took part in one or more of the facilities/services checked in *Question 6*?

___less than 25% ___26-50% ___51-75% ___more than 75% ___data unavailable

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PART II

This portion of the questionnaire requests information concerning the extent of visitor data gathering undertaken by your organization.

Does your organization collect and keep records of any visitor data/information other than attendance figures?

_____Yes _____No

How would you characterize your organization's visitor data/information collection efforts? (Please circle one number.)

1	2	3	4	5
extensive		moderate		do not collect

How would your organization respond to the following statement: *"Our organization has adequate visitor data/information on which to base future planning and programming of visitor information/interpretive services."* (Please circle one number.)

1	2	3	4	5
strongly agree	agree	no opinion	disagree	strongly disagree

If your organization does collect visitor data/information, which of the following techniques are used? (Please check all that apply.)

____Guest/visitor comment books

____Registration forms (such as camping or entrance cards)

____Suggestion boxes

____Unobtrusive observation of visitors

____Informal conversations with visitors

____Questionnaires

____On-site, formal interviews

____Off-site, formal interviews (such as follow-up telephone interviews)

____Other (please specify) _____

_____

_____

_____

____Not applicable, no such collection undertaken

If your organization does collect and record visitor data/information, please mark with a check (✓) the types collected.

____visitors' ages
____visitors' sexes
____visitors' education
____visitors' incomes
____visitors' occupations
____visitors' residences
____visitors' races
____visitors' marital statuses
____visitors' household sizes
____numbers of children
____type of visitor group
____number in visitor group
____number of children in group
____visiting children's age ranges
____visitor groups' social classes
____relationships of persons within visitor groups
____numbers of different activities participated in by visitor groups
____if overnight, types of accommodations used by visitor groups
____visitors' program/visit expectations
____visitors' motives for attendance
____visitors' attitudes toward the site
____visitors' evaluations of programs
____visitors' satisfaction with programs
____visitors' program/facility/service suggestions
____types of visitors actually participating in programs
____types of visitors at site but not actually participating in programs
____numbers of participants by activity
____types of equipment brought by visitors
____amounts of time spent by visitors at the site
____whether visitors are first-time or repeat
____whether pets are brought by visitors
____Other (please specify) _____

_____
_____
_____
_____
_____
_____

Please mark with an X the types of visitor data/information in *Question 5* above that your organization does not presently collect, but which would be beneficial if available.

Which of the following factors limit your organization's ability to collect all of the visitor data/information that could potentially be of benefit in the planning and programming of visitor information/interpretive services? (Check all that apply.)

____against organization philosophy
____budgetary constraints
____inadequate administrative support
____staff apathy
____against regulations
____inadequate research training
____manpower/time constraints
____uncooperative visitors
____Other (please specify) _____

_____

____none of the above, all desired data/information is presently available

Which of the following statements best represents your organization's view on the utility of the visitor data/information you collect? (Please check one.)

____"The data/information collected always influences our planning/programming decisions."

____"The data/information collected sometimes influences our planning/programming decisions."

____"The data/information collected seldom influences our planning/programming decisions."

____"The data/information collected never influences our planning/programming decisions."

____"We do not collect visitor data/information."

Do you have any additional comments regarding your organization's collection or non-collection of visitor data/information?